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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,705	02/04/2004	Junichi Ito	SAS2-PT067	3753

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EXAMINER	
WANG, KENT F	
ART UNIT	**PAPER NUMBER**
2609	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/771,705	ITO, JUNICHI	
	Examiner	Art Unit	
	Kent Wang	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :02/04/2004, 06/15/2005, 08/04/2005, and 01/23/2007.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The reference listed on the disclosure statement (IDS) submitted on 02/04/2004, 06/15/2005, 08/04/2005, and 01/23/2007 have being considered by the examiner (see attached PTO 1449).

Drawings

3. The drawings are objected to because labeled elements "7-7" and "8-8" in Figure 6 and "10-10" and "11-11" in Figure 9 have been mislabeled. The labeled element "7-7" and "8-8" should be changed to "A-A" and "B-B" (see page 33, lines 13-19) and the labeled element "10-10" and "11-11" should be changed to "A-A" and "B-B" (see page 34, line 23 to page 35, line 3). In addition, the reference character "1/2 frequency-driving circuit" in Figure 13 has also been mislabeled. The labeled element "1/2 frequency-driving circuit" should be changed to "1/2 frequency-dividing circuit" (see page 37, lines 22-26). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the

immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. The table below shows just a few of the many minor errors through the specification:

Page no	Line no	Mislabeled character	Corrected character
37	16	dust-filter drive circuit 48	dust-filter drive circuit 140
37	25	MOS transistors 255a,	MOS transistors 244a
55	7	In step S215	In step S315
86	14	Step S3403	Step S4033
93	14-15	memory 29	memory 129

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 5, 8-9, 12, and 14 are rejected under 35 U.S.C. § 102(b) as being anticipated by Akio (Japanese Published Application 07-151946).

Regarding claim 1, Akio discloses an imager apparatus in which an optical member protecting an imaging element is vibrated to remove dust from the optical member, said apparatus comprising:

- a vibration member (i.e. vibrator 15) which vibrates the optical member (i.e. cover glass 2) in a plurality of conditions (e.g. waterdrop, a contaminant, etc.,) (see [0013]);
- a photographing-mode setting unit (i.e. switch group 11a) which sets a photographing mode (see [0012]);
- and a vibration-condition changing unit (i.e. control section 11) which changes the condition in which the vibration member vibrates the optical member, in accordance with the photographing mode set by the photographing-mode setting unit (see [0012]).

Regarding claim 5, Akio discloses an imager apparatus in which an optical member protecting an imaging element is vibrated to remove dust from the optical member, said apparatus comprising:

- a vibration member (15) which vibrates the optical member (2);
- a photographing-mode setting unit (11a) which sets a photographing mode;
- and an operation-prohibiting unit (i.e. operating switch group 11a) which prohibits the vibration member from operating (e.g. prohibition mode), in accordance with the photographing mode set by the photographing-mode setting unit (e.g. connected to the control section 11) (see [0016]).

Regarding claim 9, Akio discloses an imager apparatus in which an optical member protecting an imaging element is vibrated to remove dust from the optical member, said apparatus comprising:

- a vibration member (15) which vibrates the optical member (2) in a plurality of conditions (e.g. waterdrop, a contaminant, etc.,);
- a photographing-condition setting unit (11a) which sets a photographing mode;
- and a vibration-condition changing unit (11) which changes the condition in which the vibration member vibrates the optical member, in accordance with the photographing condition set by the photographing-condition setting unit (e.g. on or off vibrator depending on photographing mode) (see [0012] and [0019]).

Regarding claim 12, Akio discloses an imager apparatus in which an optical member protecting an imaging element is vibrated to remove dust from the optical member, said apparatus comprising:

- a vibration member (15) which vibrates the optical member (2);
- a photographing-condition setting unit (11a) which sets a photographing mode;
- and an operation-timing setting unit (i.e. switch of the camera) which sets a timing at which the vibration member is operated (e.g. fixed time), in accordance with the photographing condition set by the photographing-condition setting unit (see [0019] and [0022]).

Regarding claim 8, Akio discloses the operation-prohibiting unit allows the vibration member to operate every time an photographing operation is performed after the photographing-mode setting unit selects a single-shot photographing mode, and allows the operation-prohibiting unit to operate at only the first photographing (e.g. manual contaminant removal mode which makes vibrator 15 an ON state) and prohibits the vibration member from operating at the second photographing (e.g. prohibition mode which makes vibrator 15 an OFF state) and any photographing following the second photographing (see [0016]).

Regarding claim 14, Akio discloses operation-timing setting unit causes the vibration member to operate during an exposure operation (e.g. manual contaminant removal mode to override during the focal motor 42 is made into ON state), in

accordance with the conditions set by the photographing-condition setting unit (see [0016] and [0017]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2, 7, and 13 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Akio in view of Mizutani, US 7,095,982.

Regarding claim 2, Akio discloses an imager apparatus in which an optical member protecting an imaging element is vibrated to remove dust from the optical member according to claim1. Akio does not explicitly disclose the photographing-mode setting unit sets one of a continuous photographing mode and a single-shot photographing mode. Mizutani discloses an imager apparatus (100) wherein the photographing-mode setting unit (i.e. single-shot/continuous-shots switch 66) sets one of a continuous photographing mode and a single-shot photographing mode (see col. 6, lines 20-26).

Akio and Mizutani are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to use Mizutani's single-shot/continuous-shots switch in Akio's

camera. The suggestion/motivation would be to provide the best capability to instruct the start of a series of processes such as an exposure process for performing single-shot or continuous-shots and the object is photographed while the shutter switch is pressed, thereby performing proper communication in accordance with the predetermined status of the imager apparatus (see col. 6, lines 8-19).

Regarding claim 7, Mizutani discloses an imager apparatus wherein the photographing-mode setting unit sets one of a still-picture photographing mode (see col. 4, lines 55-61).

Regarding claim 13, Mizutani discloses an imager apparatus wherein the photographing-condition setting unit sets conditions for an exposure operation or selects a bulb photographing (see col. 3, lines 39-52).

9. Claims 3, 4, 11, and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Akio in view of Kawai, US 7,006,138.

Regarding claim 3, Akio discloses an imager apparatus in which an optical member protecting an imaging element is vibrated to remove dust from the optical member according to claim 3. Akio does not explicitly disclose the vibration-condition changing unit changes time intervals. Kawai discloses an imager apparatus wherein the vibration-condition changing unit changes time intervals (e.g. bending vibration wave progresses according to a time lapse) at which the vibration member vibrates the optical member, in accordance with the photographing mode that has been set (see col. 4, lines 42-59, col. 5, lines 16-40, and col. 6, lines 37-49).

Akio and Kawai are analogous art because they are from the same field of endeavor for using vibration method to remove dust from the optical member. At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to use Kawai's vibration body in Akio's camera. The suggestion/motivation would be to provide the resonance frequency at a predetermined time according to the shape and the material quality of the dustproof device, a supporting method, and a vibration mode, thereby removes dust adhered to lens completely (see col. 5, lines 16-40).

Regarding claim 4, Kawai discloses a vibration-condition changing unit changes a frequency at which the optical member is vibrated, in accordance with the photographing mode that has been set (see col. 4, lines 42-59, col. 5, lines 16-40, and col. 6, lines 37-49).

Regarding claim 11, Kawai discloses a photographing-condition setting unit sets time intervals at which the optical member is vibrated, in accordance with the photographing condition that has been set (see col. 4, lines 42-59, col. 5, lines 16-40, and col. 6, lines 37-49).

Regarding claim 15, Kawai discloses an imager apparatus wherein the operation-timing setting unit causes to the vibration member to operate intermittently during an exposure operation, in accordance with the conditions set by the photographing-condition setting unit (i.e. a bending vibration wave progresses according to a time lapse) (see col. 6, lines 37-49).

10. Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Akio in view of Kaneda, US 5,633,756.

Regarding claim 6, Akio discloses an imager apparatus in which an optical member protecting an imaging element is vibrated to remove dust from the optical member. Akio does not does not explicitly disclose the photographing-mode setting unit sets one of a low-noise operation mode and a non-low-noise operation mode. Kaneda discloses an imager apparatus wherein photographing-mode setting unit sets, as the photographing mode, one of a low-noise operation mode and a non-low-noise operation mode (i.e. AS-ON for producing noise and AS-OFF for free from noise) (see col. 7, lines 22-27 and col. 7, line 47 to col. 8, line 5).

Akio and Kaneda are analogous art because they are from the same field of endeavor. It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used the devices as taught by Kaneda to the camera system of Akio so that imparts a setting function to prevent recording of noise produced during photographing operation, such noise may be undesirably in a video mode (see col. 5, lines 1-6 and lines 47-61).

11. Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Akio in view of Rouvinen, US 2003/0227559.

Regarding claim 10, Akio discloses an imager apparatus in which an optical member protecting an imaging element is vibrated to remove dust from the optical member. Akio does not explicitly disclose the photographing-condition setting unit sets

a resolution for images to be photographed. Kaneda discloses an imager apparatus wherein the photographing-condition setting unit sets a resolution for images to be photographed (i.e. the piezoelectric element provides a high resolution) (see [0009]).

Akio and Rouvinen are analogous art because they are from the same field of endeavor for using vibration method to remove dust from the optical member. At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to use Rouvinen's piezoelectric element in Akio's camera. The suggestion/motivation would be to provide a resolution with great precision by the adjustment movement generated by the multiple bimorph piezoelectric elements (see [0006] and [0010]).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Mattsson et al. (US 2003/0227560) disclose a digital camera is constructed with multiple lenses mounted in a pair of tubular elements which are nested together for relative axial movement. Movement is provided by piezoelectric actuators mounted externally to a support tube on flexible printed circuit board elements.
- Takizawa (US 2003/0202114) disclose a camera that includes includes a dust-proofing member that has a substantially circular or polygonal plate-shape and that includes a transparent portion at an area having at least a

predetermined length in a radial direction from the center thereof, and that is opposed to the front of an optical device at a predetermined interval.

Inquiries

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Wang whose telephone number is 571-270-1703. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on 571-272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-270-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kent Wang
2 April 2007

CHANH D. NGUYEN
SUPERVISORY PATENT EXAMINER